

## DID 'ALI IBN 'ISA USE GENERAL ANAESTHESIA IN EYE OPERATIONS?\*

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THE erroneous view that 'Ali ibn 'Isa, the distinguished Arab eye physician of the 10th century A.D. and author of the famous "Tadhkirat el-Kahhalin" (Promptuary for Oculists) translated into German by Hirschberg, Lippert, and Mittwoch (1904), used general anaesthesia in certain eye operations has not yet been definitely refuted; it has crept into the mind and persisted until the present day. It may be found even in some works on the history of medicine (e.g. Elgood, 1951), and Major (1954) prefaces it with the phrase "according to Hirschberg . . ." This is the more astonishing as Hirschberg, excellent historian as he was, came in later years to be not at all sure about the correctness of his assumption. However, his lengthy emphatic commentary on certain passages in the "Tadhkira", where he was quite positive, created an impression which his later doubts—which, of course, did not reach those who knew only his rendering of the "Tadhkira"—were apparently unable to dispel.

Hirschberg's introduction devotes three pages to this pet subject of his, and there are also several explicit footnotes; in the translation of Ṣalāḥ ed-Dīn's "Nur el'Uyun" (Light of the Eyes) of the late 13th century (Hirschberg, Lippert, and Mittwoch, 1905a), he slowly sounds the retreat; his "History of Ophthalmology" (Hirschberg, 1908) includes a lengthy discussion of the pros and cons, with no unequivocal decision, and the subject is once more briefly mentioned 3 years later (Hirschberg, 1911).

The whole question was first introduced by Hirschberg and others (1904, p. xxxiii) by the following significant sentence:

"In conclusion we arrive at the most remarkable piece of the whole work, the *operation* in general *anaesthesia* (narcosis)."

The problem centres in the Arab word *tanwīm*†, which is translated as "sending a person to sleep", "soporification". When reading this passage many years ago, I made the following marginal annotation on p. xxxiv of my copy:

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† Whenever an Arabic word is quoted, the original transcription is adhered to.

"As the root *nama* in Arabic, from which the noun *tanwim* derives, has indeed the meaning of 'to sleep' but 'to lie down' as well, the whole contention becomes untenable."

This, in fact, was the stumbling-block of Hirschberg (or rather of his Arabist), as *tanwim* ('letting the patient lie down'), when performing a painful (and time-consuming) operation,\* was interpreted as "sending the patient to sleep".

A year later, however, the rendering of Ṣalāḥ ed-Din's treatise (Hirschberg and others, 1905a), reads (on p. 257) correctly:

"Thereupon [on the third day after couching] wash the eye carefully while the patient *remains recumbent*."

To this is appended a footnote:

"In the text it says *sleeps*. But this would be entirely wrong and would cause the opposite of what was intended, namely a vehement incoordinate movement on the part of the patient starting up."

On the same page in this translation, Ṭabīṭ ibn Qurra (a famous Christian Arab physician of the 9th century) is quoted as having advised the reader "to perform the operation [for cataract] at the edge of the carpet [probably: divan, low couch] on which you should let him sleep". Here a footnote again says: "*Tunawwim*, i.e. 'you send him to sleep'. But there is no reason to assume that the administration of narcotic remedies is intended."

When Hirschberg deals with the subject in his history of ophthalmology (Hirschberg, 1908), it is very interesting—from the psychological point of view—to note how hard it must have been for him to have to drop as untenable the wonderful discovery of general anaesthesia among the Arab eye surgeons of the 10th century. As if to excuse himself for his first assumption, he cites a phrase added six centuries later by a Moroccan copyist of 'Alī ibn 'Isa's work to the words "to send him to sleep"—namely: "until the loss of consciousness and perception". Hirschberg also quotes all the incorrect translations into barbarous mediaeval Latin of 'Alī ibn 'Isa's *tanwim*:

"da ei *soporifa* coram te",

"da ei *sompnifera*",

"fac *dormire* patientem",

"facias patientem *dormire* coram te",

"deinde *sopor*. firma aegrum ante te",

"deinde *sompnifera* (vel *soporifera*) aegrum coram te".

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\* Such as:

"noosing false eye-lashes with a suture" (*ἀναβροχισμός* of Paulus);

"tying up the lid" for trichiasis (*tašmir* [= "threading"], or *ἀναβράφη* of the Greeks), II, 10);

excision of a cyst (*širnaq*, or *ὕδαρίς* of the Greeks) at or near the upper lid (most probably a dermoid cyst, but

possibly also a chalazion), II, 21;

excision of pterygium, II, 41;

operation for *sebel* (pannus), II, 45.

However, a Latin version from a more careful Hebrew translation of the "Tadhkira" reads, with one exception:

"fac eum *jacere* coram te",  
 "fac *jacere* infirmum",  
 "facias *jacere* infirmum coram te",

in accordance with the Hebrew *tashkib* "let him lie down".

In Hirschberg's German version of 'Ammar ibn 'Ali's "Kitab el-Muntakhab" (Book of Selection) of the late 10th century (Hirschberg and others, 1905b), for which he and his Arabist collaborators had the benefit of an excellent Hebrew version (made by Nathan ha-Meati in the latter half of the 13th century), he seems to have become reconciled with his disappointment. *Tunawim* (in the operation of *hydatis*) is translated "you let the patient lie down on his back", and in an annotation (on p. 51, where the Hebrew *tashkib* is quoted) he first states unequivocally:

"The comparison of 'Ammar with 'Ali ibn 'Isa makes a correction of our statement about narcosis necessary" (my italics).

On p. 61 (presentation of operation for trichiasis, anarraphe), he simply gives for: "ta'amur an *yanāma*" (*tashkib* in Hebrew)—"you order him to lie down".

On p. 68 (cauterization of a lacrimal fistula) *nawim* (*tashkib* in Hebrew) is translated: "you let the patient lie down (on his back)".

On p. 69 we find: "you order the patient [during the same operation] . . . to blow his nose (while the latter is plugged)".

On p. 75 (operation for pannus): "you let the patient lie on his back" (*tashkib* in Hebrew).

"A few lines further on", says Hirschberg in his history (1905a, p. 195), "'Ammar uses the word *tunawim*, literally 'you let [the patient] sleep'".

Having reproduced all this material, Hirschberg (1908)—to our surprise—on p. 196 summarizes as follows:

"Thus it must at least remain undecided whether 'Ali ibn 'Isa had in view surgical anaesthesia."

But he also adds in a footnote: "I rather believe he did *not* mean it really, and that the Arabic dictionaries have to add to *nawwama* that it means "to make [a person] lie down as (if) for sleep". Apparently in doubt, once more he concludes the chapter with the following sentences:

"But from where did the Salernitans (Nicolaus Praepositus of the 12th century) get their *spongia somnifera*—if not from the Arabs? As long as no new sources are discovered, we shall not be able to decide the issue for certain."

No wonder that, after such a final opinion, readers unacquainted with (at least) the colloquial Arabic and the daily use of the words *nama* (to lie down, to sleep), and *nawwama* (to let [someone] lie down, to put [someone] to sleep), remain somewhat confused and do not know what to believe.\*

While indeed the origin of the *spongia somnifera* of the Salernitans† remains uncertain, there is not the slightest doubt that, in all the passages quoted from 'Ali ibn 'Isa (and other Arab authors), wherever *tanwim* is used, "making [the patient] lie down" is meant and nothing else. A final proof is given by the following additional passages from 'Ali's work (also cited by Hirschberg but not sufficiently emphasized), where it is quite obvious that the expression refers to a recumbent but not to a narcotized patient:

(a) At the end of the operation of "noosing false eye-lashes with a suture" (II, 10): "*Tell the [narcotized?] patient to close both his eyes and to open them before you cut off [the skin], to be sure that a lagophthalmus will not result . . .*"

(b) "In case [the patient] who has to be operated upon for *širnaq* (II, 21) belongs to those who cannot hold still and he causes you trouble; then send him to sleep.‡ *One man should hold his head and another one his hands*" (my italics).

Thus the issue may be regarded as finally settled. In this connexion it only remains to point out that there must have been eye surgeons during the Arab period who operated on the recumbent patient, not only when painful procedures had to be applied but also—probably in very rare cases—in couching for cataract. Apart from the passage mentioned above from Ṭabīṭ ibn Qurra, there are the remarkable sentences with which Khalifa al-Ḥalabi (a prominent oculist of the mid-13th century) concludes his treatise "*Kitāb el Kafi fi'l-Kohl*" (On the Sufficient in Oculistics):

"I have heard of one of the most famous surgeons of our time having operated [for cataract] on a lady of high rank while she was recumbent on her back, and his operation was successful. I am telling you this [without reserve] in order you should not declare as untrue everything you hear about strange operations which differ from what is usual. God, the Sublime, knows best what is right. This concludes the chapter on operations with the iron" (Hirschberg and others, 1905c).

\* Oriental Jews in Israel deriving from Arab countries and being unfamiliar with the correct Hebrew expression for "lying down", will today often say (in Hebrew) to the doctor: "He was so ill that he had to sleep in bed for 10 days". In Hebrew "num" ("nama" in Arabic) is used (in poetry) for "to slumber", "to fall asleep", and "numa" ("nawm" in Arabic) or "tenuma" for the noun "slumber".

† "... Taking a suggestion from the "Antidotarium" of Nicolaus Salernitanus, Hugh [of Lucca] and Theodoric [of Cervia] taught the use of a sleeping sponge . . . saturated with mixed juices of opium, hyoscyamus, mandragora, conium and other narcotic plants, dried in the sun, dipped in warm water when required, and applied to the patient's nostrils" (Robinson, 1931).

‡ This is the above-mentioned interpolation of the Moroccan copyist (a certain ibn'Azzuz) which was added to a transcript dating from 1600.

Finally, I am reminded of one of Hirschberg's wise allusions to linguistic difficulties in historical documents: "It is not easy to do justice to olden times whose language we barely understand, even if we comprehend the sense of the words."

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